

Customer No.: 31561  
Docket No.: 11987-US-PA  
Application No.: 10/708,212

### REMARK

Claims 1-3 and 8 are still pending because they were rejected on the grounds of lacking novelty. Applicant respectfully traverses the examiner's preceding rejection and the required election/restriction based on the following arguments. Applicant respectfully submits that claims 1-3 and 8 patently define over prior art of record and reconsideration of this application is respectfully requested.

### Arguments on election/restriction

*1. Withdrawal of restriction is not warranty because a technique to vary "duty cycle" is different to a technique vary "frequency" of a control pulse signal even though both techniques would provide to a similar result.*

Applicant respectfully requests the Examiner can reconsider the withdrawal of the election based on the following arguments. As explained by the examiner, a change of duty cycle of a signal that can be generated either with or without a change of frequency and /or phase. In other words, duty cycle, frequency and phase may vary independently. However, in some situations, from the definition of duty cycle, i.e.  $T_{on}/(T_{on}+T_{off})$ , if  $(T_{on}+T_{off})$ , which represents a cycle time or a frequency (an inversion of the cycle time), is changed, duty cycle is changed accordingly. Thus, in fact, there does exist a high correlation between duty cycle and frequency, which renders Group I and II not to be regarded separate inventions, and the re-consideration of withdrawing the election/restriction is respectfully requested.

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**Discussion for rejection to claims under 35U.S.C. 112**

*3. Claims 1-3 and 8 are rejected under 35 U.S.C. 112, 1<sup>st</sup> paragraph, as failing to comply with enablement requirement.*

*4. Claim 1, recitation of "a duty cycle of the illumination control signal varies with time within a predetermined range" is not fully described in the specification.*

*6. Claim 8, recitation of "a phase shift, frequency and duty cycle of the illumination control signal varies with time within a predetermined range" is not fully described in the specification.*

In response thereto, applicant respectfully traverses the preceding examiner's rejections to the claims 1 and 8 based on the following arguments.

From the circuit as shown in Fig.4 and its corresponding description paragraph [0029], in lines 4-6 and 9-14, there disclose " the noise generator 410 further comprises a resistor 411 and an amplifier 421 electrically connected together" and "The noise signal Nos is transmitted to the analogue adder circuit 420 such that the noise signal Nos and an illumination-adjusting signal Ref originally set to control the output duty cycle of the DC voltage are summed together to produce a noise signal loaded illumination-adjusting signal Ref. In addition, as the thermal noise produced by the resistor 411 has random voltage amplitudes that vary with time, voltage amplitudes of the noise signal Nos vary with time. (emphasis added)" Hence, due to the introduction of the resistor 411 and its random voltage varying with time, the circuit shown in Fig.4 is capable of generating an illumination control signal with its duty cycle varying with

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time because the illumination control signal is generated through the summation of the Nos and the illumination-adjusting signal Ref.

Accordingly, the claim 1, recitation of "a duty cycle of the illumination control signal varies with time within a predetermined range" is fully described in the specification. That is, claims 1-3 do comply with enablement requirement for patentability.

As to the Examiner's questing claim 8 is not support in the specification, Fig.8 and its corresponding description paragraphs [0036]and [0037] are capable of supporting the claim 8. From these two paragraphs, each cycle of pulse signal has ON-time and OFF-time. Meanwhile,  $ON_1=ON_2=ON_3=\dots=ON_n$ , but,  $OFF_1\neq OFF_2\neq OFF_3\neq\dots\neq OFF_n$  because of the different phase shifts. More, the frequency of each pulse is turning on time plus turning off time. As the off time is different in each pulse, the frequency of each adjacent pulses ( $1/T_1\neq 1/T_2\neq 1/T_3\neq\dots\neq 1/T_n$ ) is varied. Furthermore, the duty cycle is defined as  $\text{duty cycle}=(\text{Ton})/(\text{Ton}+\text{Toff})$ , so the duty cycle of each adjacent pulses is varied. Therefore, the claim 8 is supported in the specification.

**Discussion for rejection to claims under 35 U.S.C.102(e)**

*8. Claims 1 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Xu et al. (U.S. Pub. 2003/0085749), hereinafter referred to Xu.*

In response thereto, applicant respectfully traverses the preceding examiner's rejections to the claims 1 and 8 based on the following arguments.

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To establish a *prima facie* case of anticipation, the cited reference (i.e. Xu) should teach, suggest or disclose all limitations of the claims 1 and 8. In Fig.7, in Xu, the examiner alleged marked A functions as an illumination adjusting signal as claimed in the claims 1 and 8. Actually, the preceding Examiner's allegation is incorrect because the marked A is a feedback signal of LED and used to stabilize its brightness. By contrast, in the present application, illumination adjusting signal is used to dim the light so that the marked A is not identical to "illumination adjusting signal," as claimed in the claims 1 and 8.

Further, the examiner alleged marked B functions as an illumination control signal. However, in terms of Xu, from paragraph [0031], the illumination control signal of the present invention corresponds to low frequency PWM switching signal, i.e. one input of AND-gate 42 in Fig.9. The present invention features the processing of the low frequency PWM switching signal so that it is able to vary with time within a predetermined range to improve visual noise. In contrast, in Xu, no such technique is disclosed and the low frequency PWM switching signal has a fixed duty cycle. Thus, Xu fails to teach, suggest or disclose "an illumination control pulse-generating unit's receiving an illumination adjusting signal" and "a duty cycle (phase shift and frequency) of the illumination control pulse signal varies within a predetermined range," as claimed in the claim 1( claim 8). In other words, the claims 1 and 8 are not anticipated by Xu and thus patentable.

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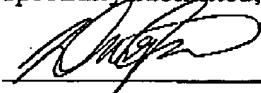
### CONCLUSION

For at least the foregoing reasons, it is believed that all the pending claims 1-3 and 8 of the invention patently define over the prior art and are in proper condition for allowance. Reconsideration of claims 1-3 and 8 and the present application is respectfully requested. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Respectfully submitted,



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